Panos N. Alevizos

PhD degree in Electrical and Computer Engineering (ECE)
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Research Interests

My interests span the areas of communication theory and physical-layer-oriented wireless networking with emphasis on low-complexity receiver design.

During my PhD studies I was working on reception algorithms for scatter radio and related RFID applications, localization and tracking. Furthermore, I am very interested on designing signal processing algorithms in massive MIMO 5G systems, exploiting the deep knowledge of plethora of low-complexity and efficient optimization methods. Also, I had been working on distributed inference algorithms for networking applications, such as resource allocation in wireless sensor networks.

Education

- **PhD in Electrical and Computer Engineering,**
  School of ECE, TUC, Chania, Greece,
  (October 2014 - September 2017).
  PhD Thesis: *"Intelligent Scatter Radio, RF Harvesting Analysis, and Resource Allocation for Ultra-Low-Power Internet-of-Things"*
  Advisor: Associate Professor Aggelos Bletsas.

- **MSc. in Electronics and Computer Engineering,**
  School of ECE, TUC, Chania, Greece,
  (October 2012 - October 2014).
  MSc. Thesis: *"Channel Coding and Detection for Increased Range Bistatic Scatter Radio"*
  Advisor: Associate Professor Aggelos Bletsas.
  GPA: 10.0/10.0 ("Excellent").

- **Diploma in Electronics and Computer Engineering,** (5-year program)
  School of ECE, TUC, Chania, Greece,
  (September 2006 - September 2012). Thesis: *"Factor Graphs: Theory and Applications"*
  Advisor: Associate Professor Aggelos Bletsas.
  GPA: 8.52/10.0 ("Excellent").

Academic & Research Experience

- Research Assistant - worked on:
  - BLASE (Nov. 2012 - Sep. 2015): ERC-04-BLASE Research project "Backscatter Networks for Large-Scale Environmental Sensing", executed in the context of the Education and Lifelong Learning Program of General Secretariat for Research and Technology (GSRT) of Greece.
  - DISCO (Feb. 2014 - Aug. 2015): Research Project "DIStributed COmmunication Systems" is funded within the framework of the THALES Program.

  - Channel Estimation at the Base Station Through Limited Feedback in Frequency-Division-Duplex Systems With Large Antenna Arrays: Collaboration with Prof. Nikolaos Sidiropoulos at University of Minnesota, Dr. Xiao Fu PostDoc at University of Minnesota, and Dr. Ye Yang Huawei Technologies Co., Ltd.

- Journal Reviewer for:
  - IEEE Transactions on Wireless Communications,
  - IEEE Transactions on Communications,
  - IEEE Wireless Communications Letters,
  - IEEE Communications Letters,
  - IEEE Transactions on Signal and Information Processing over Networks,
  - IEEE Access.
- Teaching Assistant for: "Communication Systems I" (Undergraduate Course), "Communication Systems II" (Undergraduate Course), "Detection and Estimation Theory" (Graduate Course), and "Probabilistic Graphical Models and Inference Algorithms" (Graduate Course) at the school ECE TUC.

Awards and Distinctions

- **Exemplary reviewer award** in IEEE Transactions on Wireless Communication for year 2017.
- **Student and Early Researcher Travel Grant Award** in IEEE Communication Theory Workshop (CTW), Nafplio, Greece, May 2016.
- **Best Student Paper Award** in IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brisbane, Australia, April 2015.
- **Exemplary reviewer award** in IEEE Wireless Communication Letters for year 2015.
- **Undergraduate Fellowship Award**, Office of Sponsored Research, awarded to the top 10 of class. Technical University of Crete, for the academic year 2009-2010.

Journal Publications

11. A. Bletsas, P. N. Alevizos, and G. Vougioukas, "The Art of Signal Processing in Backscatter Radio for μWatt (or less) Internet-of-Things", submitted to IEEE Signal Processing Magazine, Feb. 2018.
10. P. N. Alevizos, "Low-Complexity Multiuser QAM Detection for Uplink 1-bit Massive MIMO", submitted to IEEE Communication Letters (COMML), Feb. 2018.
9. P. N. Alevizos, X. Fu, N. Sidiropoulos, Y. Yang, and A. Bletsas, "Limited Feedback Channel Estimation in Massive MIMO with Non-uniform Directional Dictionaries", in second review round, submitted to IEEE Transactions on Signal Processing (TSP), Dec. 2017.
8. P. Oikonomakos, D. Ntilis, P. N. Alevizos, V. Papadakis, A. G. Dimitriou, and A. Bletsas, "Minimum Throughput Protection in City-Scale Rooftop Networking with Multiple Directive Radios", submitted to IEEE Transactions on Networking (TNET), Nov. 2017.
7. P. N. Alevizos, E. Vlachos and A. Bletsas, "Inference-based Distributed Channel Allocation in Wireless

Sensor Networks," submitted to IEEE Transactions on Networking (TNET), Nov. 2017, arxiv.org link.

6. P. N. Alevizos and A. Bletsas, "Nonlinear and Sensitive Far Field RF Harvesting in Wireless Communications", accepted, IEEE Transactions on Wireless Communication (TWC), Jul. 2017, arxiv.org link.

5. P. N. Alevizos, K. Tountas, and A. Bletsas, "Multistatic Scatter Radio Sensor Networks for Extended Coverage", in second review round, IEEE Transactions on Wireless Communication (TWC), May 2017, arxiv.org link.

4. P. N. Alevizos, A. Bletsas and G.N. Karystinos, "Noncoherent Short Packet Detection and Decoding for Scatter Radio Sensor Networking," vol.65, No. 5, pp. 2128–2140, May 2016.

3. P. N. Alevizos and A. Bletsas, "Network Localization Cramér–Rao Bounds for General Measurement Models," IEEE Communications Letters, vol. 20, No. 9, pp. 1840–1843, Jun. 2016.

2. P. N. Alevizos, Y. Fountzoulas, G. N. Karystinos, and A. Bletsas, "Log-linear-complexity GLRT-optimal Noncoherent Sequence Detection for Orthogonal and RFID-oriented Modulations," IEEE Transactions on Communications, vol.64, No. 4, pp. 1600-1612, Apr. 2016.

1. N. Fasarakis-Hilliard, P. N. Alevizos, and A. Bletsas, "Coherent Detection and Channel Coding for Bistatic Scatter Radio Networking," IEEE Transactions on Communications, vol. 63, No. 5, pp. 1798–1810, May 2015.

Conference Publications

14. N. Psaromanolakis, P. N. Alevizos,and A. Bletsas, "Approximate Message Passing for Joint Data and Channel Estimation in Multi-cell Massive MIMO," submitted to IEEE SPAWC 2018.

13. P. N. Alevizos, G. Vougioukas, and A. Bletsas, "Nonlinear Energy Harvesting Models in Wireless Information and Power Transfer," submitted to IEEE SPAWC 2018.

12. G. Vougioukas, P. N. Alevizos,and A. Bletsas, "Coherent Detector for Pseudo-FSK Backscatter under Ambient Constant Envelope Illumination," submitted to IEEE SPAWC 2018.

11. P. N. Alevizos, X. Fu, N. Sidiropoulos, Y. Yang, A. Bletsas, "Non-uniform Directional Dictionary-Based Limited Feedback for Massive MIMO Systems", in Proc. IEEE International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt), Paris, FR, May 2017.

10. P. N. Alevizos and A. Bletsas, "Scatter Radio Receivers for Extended Range Environmental Sensing WSNs," in *Proc. IEEE Communication Theory Workshop (CTW)*, May 2016, Nafplio, Greece.
Student and Early Researcher Travel Grant Award.

9. K. Tountas, P. N. Alevizos, A. Tzedaki, and A. Bletsas, "Bistatic Architecture Provides Extended Coverage and System Reliability in Scatter Sensor Networks," in *Proc. International Eurasip Workshop on RFID Technology*, Rosenheim, Germany, Oct. 2015.

8. P. N. Alevizos and A. Bletsas, "Noncoherent Composite Hypothesis Testing Receivers for Extended Range Bistatic Scatter Radio WSNs," in *Proc. IEEE ICC*, London, UK, Jun. 2015.

7. N. Fasarakis-Hilliard, P. N. Alevizos, and A. Bletsas, "Coherent Detection and Channel Coding for Bistatic Scatter Radio Sensor Networking," in *Proc. IEEE ICC*, London, UK, Jun. 2015.

6. P. N. Alevizos, Y. Foutzoulas, G. N. Karystinos, and A. Bletsas, "Noncoherent Sequence Detection of

Orthogonally Modulated Signals in Flat Fading with Log-Linear Complexity," in *Proc. IEEE ICASSP*, Brisbane, Australia, Apr. 2015.
Conference-wide Student Paper Award and Best Student Paper Award in Communications and Networks track.

5. N. Fasarakis-Hilliard, P. N. Alevizos, and A. Bletsas, "Variational Inference Cooperative Network Localization with Narrowband Radios," in *Proc. IEEE ICASSP*, Brisbane, Australia, Apr. 2015.

4. P. N. Alevizos, E. Vlachos and A. Bletsas, "Factor Graph Based Distributed Channel Allocation for WSNs," in *Proc. IEEE GLOBECOM*, Austin, TX, Dec. 2014.

3. N. Fasarakis-Hilliard, P. N. Alevizos, and A. Bletsas, "Narrowband Cooperative Network Localization," in *Proc. IEEE GLOBECOM*, Austin, TX, Dec. 2014.

2. P. N. Alevizos, N. Fasarakis-Hilliard, K. Tountas, N. Agadakos, N. Kargas and A. Bletsas, "Channel Coding for Increased Range Bistatic Backscatter Radio: Experimental Results," in *Proc. IEEE RFID-TA*, Tampere, Finland, Sep. 2014.

1. P. Alevizos, N. Fasarakis-Hilliard and A. Bletsas, "Cooperative Localization in Wireless Sensor Networks under Bandwidth Constrains," in *Proc. IEEE ASILOMAR*, Pacific Grove, CA, Nov. 2012.

Languages

- Greek Native Speaker.
- English Very Good, State Language Certificate.
- French Good, DELF A1, A2

Technical Skills

- Programming Languages: MATLAB, C, Java, Python.
- Software Development Tools: Microsoft Visual Studio, Eclipse IDE.
- Application Software: TeX (LATeX), Microsoft Office, OpenOffice, Incscape.
- Embedded Systems: Software and hardware development with MSU and DSP platforms (C8051F321 MCU, CC2500 Chipcon Radio), USRP.
- Hardware Development Tools: VHDL language with Xilinx ISE and Embedded Systems prototyping with Xilinx EDK.
- Operating Systems: Microsoft Windows, Linux.

Graduate coursework

- Introduction to Optimization Theory, Detection and Estimation Theory, Special Topics in Communications (a Convex Optimization course), Probability and Random Processes, Advanced Topics in Non-linear Programming, Information Theory, Special Topics in Signal Processing and Natural Language (a Functional Analysis course), Coding Theory, Probabilistic Graphical Models and Inference Algorithms, Real Analysis, Fourier Series and Complex Analysis, Advanced Topics in Convex Optimization, Operators Theory, Functional Analysis and Applications, Randomized Algorithms, Machine Learning, Real Analysis and Measure Theory, Non-Linear Programming (audit at UMN).

Other Interests - Extra Curricular Activities

- Black Belt in karate Okinawa, Platoon Leader of TUC parade team, Basketball

References

Upon Request